

**10. NAME(S) OF STRUCTURE**

State Bridge Number 120

**11. PHOTOS (W/ FILM ROLL & FRAME NO.) AND SKETCH MAP OF LOCATION**

44A:18-30



44A:20

Mack, Warren W. "A History of Motor Highways in Delaware", in Reed, Henry Clay, Delaware: A History of the First State, vol.2, pp.535-550 (NY: Lewis Historical Pub. Co., 1947).  
Delaware State Program. Delaware State Highways; The Story of Roads in Delaware.... [Newark, Delaware: Press of Kells, 1919].  
Federal Writers' Project. Delaware: A Guide to the First State. (New York: Viking Press, 1938).  
Spero, Paula A. C. A Survey and Photographic Inventory of Concrete and Masonry Arch Bridges in Virginia. (Charlottesville, Virginia: Virginia Highway & Transportation Research Council, 1984).  
Wilmington Every Evening Journal Every Evening, 4 March 1937.

Delaware State Archives. State of Delaware, New Castle County Levy Court, Specifications, Proposals, Contract and Bond files.  
Delaware State Archives. New Castle County Road Commissioners Records, 1750-1940.  
Delaware DOT records: Photo Archives  
Plans on file at Delaware DOT: None

**13. INVENTORIED BY:**

**AFFILIATION**

**DATE**

P.A.C. Spero & Company with Kidde Consultants for Delaware DOT

April-November 1988



# HABS/HAER INVENTORY

See "HABS/HAER Inventory Guidelines" before filling out this card.

## 1. NAME(S) OF STRUCTURE

State Bridge Number 120

## 2. LOCATION

Mt. Cuba Road over Red Clay Creek  
Ashland, New Castle, Delaware

## 3. DATE(S) OF CONSTRUCTION

1922

## 4. USE (ORIGINAL/CURRENT)

Vehicular

## 5. RATING

CA

## 6. CONDITION

Fair: Very heavy deterioration at lower northeast corner of arch with exposed reinforcement deterioration at waterline. Heavy calcium deposits on underside.

State Highway Bridge 120 is a 81'-0" long solid spandrel, filled concrete arch bridge with a clear span of 81'-0" and an arch rise of 9'-0". It is built on approximately a 45 degree skew. The bridge carries two lanes of traffic. The total horizontal clearance is 24'-6". The substructure consists of concrete abutments with three flared wing walls. The northeast wing wall is straight. The arch is capped with a concrete parapet, corbeled at the top and bottom, that extends onto the wing walls. The parapet is ornamented with incised rectangles.

Delaware Department of Transportation records state that Bridge 120 was built in 1922, replacing a timber covered bridge of Town lattice construction, nearly identical to the Ashland covered bridge. A plaque on the bridge confirms the construction date and further states that Red Clay Creek Bridge Number 120 was built for the Levy Court, New Castle County, Delaware by the Luten Bridge Company of York, Pennsylvania. The curved, inscribed solid concrete parapets are a typical feature of Luten bridges. Bridge 120 is an example of a proprietary type designed by the Luten Bridge Company, the firm established by Daniel B. Luten, whose bridges found wide acceptance throughout the east and midwest in the early twentieth century. Luten, a 1894 civil engineering graduate from the University of Michigan, began patenting bridge designs in 1899. Luten's patents, totaling over 30, included his currently-recognized arch bridges, as well as numerous variations, such as a hinged arch and viaducts; systems of reinforcement; ingenious centering forms and methods; methods of bridge construction; and reinforced concrete beams. Luten's first bridge company was the National Bridge Company, established in 1902. A 1914 Luten publication stated that until 1905 the National Bridge Company did the contracting and constructing of its bridges, but after that it was involved only in engineering design and supervision. In 1907, a company catalog advertised a variety of earth filled arches reinforced with steel rods. By 1911, Luten had won national attention, and was singled out by bridge historian Henry Grattan Tyrell as a "designer and builder of many fine concrete bridges throughout America."

Bridge 120, a solid spandrel arch, was designed by the Luten Bridge Company. Characterized by the graceful arch and curved, inscribed solid parapets, this bridge type was described in Luten's company catalogs as "Highway Bridge of Plain Design". Although it is somewhat deteriorated, this structure represents a proprietary type designed by a nationally significant company. Other Luten bridges identified in Delaware include Bridge 383, constructed in 1910, and Bridge 337 (1912), both in New Castle County, and Bridge 237, constructed in 1922 and located in Sussex County. All are Luten "plain" designs, similar to his patent number 852,970. This type of concrete arch was built widely as a proprietary type in the first quarter of the twentieth century. Variations in the Luten style arch and parapet detail soon developed and resulted in numerous, similar non-proprietary designs prepared by highway department staffs.